

## 1.1 PURPOSE AND SCOPE

The purpose of this Elwha River Water Quality Mitigation Project Planning Report (Project Planning Report) is to evaluate various water intake, treatment and supply alternatives to ensure the preservation of water quality for the City of Port Angeles (City), Washington Department of Fish and Wildlife, and the Lower Elwha Klallam Tribe (Tribe) during the Elwha River Restoration Project. The Elwha River Restoration Project includes the removal of the Glines Canyon Dam and Elwha Dam from the Elwha River. The Elwha River is the current source of water for the City of Port Angeles' municipal and industrial needs, as well as the source of water for the Tribal fish hatchery and the State rearing channel. The removal of the dams will adversely impact the raw water quality of the Elwha River. Public Law 102-495, the Elwha River Ecosystem and Fisheries Restoration Act, passed in 1992, directs the Secretary of the Interior to restore the anadromous fisheries and the ecosystem of the Elwha River. The Act states that the Secretary is to take actions as necessary to implement:

“...protection of the existing quality and availability of water from the Elwha River for municipal and industrial uses from possible adverse impacts of dam removal.”

This Project Planning Report develops mitigation measures for the City of Port Angeles and the Lower Elwha Klallam Tribe to protect against the possible adverse impacts of dam removal. The City of Port Angeles and the Lower Elwha Klallam Tribe currently supply water for the following uses:

- City of Port Angeles Residents (Municipal Water Supply)
- City of Port Angeles Industrial Consumers
- Washington Department of Fish and Wildlife (WDFW) Fish Rearing Channel
- Lower Elwha Klallam Tribe Fish Hatchery

This Project Planning Report does not address possible mitigation measures for other users of the Elwha River, including, but not limited to, the Dry Creek Water Association, the Elwha Place Homeowners Association, and various individual private wells located along the river. The mitigation measures for these water users are being developed directly between each of these users and the Olympic National Park. The Dry Creek Water Association has expressed interest in potentially being included in any mitigation measures proposed for the City of Port Angeles municipal supply. Inclusion of the Dry Creek Water Association into any of the mitigation measures developed in this report would not significantly affect the feasibility or cost due to the small amount of water required by this entity and its relative proximity to the City's water supply system.

The Washington State Department of Health (WDOH) requires that water purveyors shall submit Project Reports for written approval prior to installation of any new water system, water system extension, or major improvement. The requirements for Project Reports are defined in Washington Administrative Code (WAC) 246-290-110. The Project Report for the municipal mitigation measures will be submitted to WDOH as a separate report.

## 1.2 PROJECT DESCRIPTION AND HISTORY

In the early 1900's, two hydroelectric dams were constructed on the Elwha River located on the Olympic Peninsula in Washington State. Construction of the Elwha Dam began in 1910 and formed Lake Aldwell. Construction of Glines Canyon Dam began in 1925 and formed Lake Mills. Both dams were constructed without fish passage facilities and block the migration of the anadromous fish that historically used the river for spawning and rearing.

In 1968, the owner and operator of the dams, Crown Zellerbach Corporation, submitted an application to the Federal Energy Regulatory Commission (FERC) to license Elwha Dam and, in 1973, applied to re-license Glines Canyon Dam. FERC proceeded with licensing activities and processed the two licenses together. Licensing the two dams became controversial for a number of reasons including a challenge in the 1980's that FERC did not have jurisdiction to re-license Glines Canyon Dam because the dam is located within the Olympic National Park.

Subsequent to license applications, the assets of Crown Zellerbach Corporation were purchased by James River Corporation (currently Fort James Corporation). These assets included the Elwha and Glines Canyon Dams and a pulp and paper mill located in the City of Port Angeles. The mill was later sold to Daishowa America Co., Ltd. (Daishowa). Until February 2000, the Fort James Corporation owned the two dams and Daishowa operated the two dams and associated power plants. Daishowa received power from the dams for the operation of the mill.

In 1992, Congress passed Public Law 102-495, the Elwha River Ecosystems and Fisheries Restoration Act (Act). The Act directs the Secretary of the Interior to study ways to fully restore the Elwha River ecosystem and native anadromous fisheries, including purchase and removal of the dams. The Secretary's report, *The Elwha Report* (Interior, et al., 1994), determined that removing the dams was feasible and necessary to fully restore the fisheries and ecosystem. In February 2000, the Federal Government purchased the dams and related facilities from the Fort James Corporation. The Bureau of Reclamation with National Park Service oversight currently operates the dams. Operation will continue until decommissioning.

The dam removal approach and environmental impacts associated with dam removal alternatives were discussed in the *Elwha River Ecosystem Restoration Final Environmental Impact Statement* (EIS, Olympic National Park Service, November 1996). This report also proposed water quality mitigation measures for all users of the Elwha River, including:

- Construct a new Ranney collector on west side of the Elwha River to mitigate possible river migration away from the current Ranney collector and possible reduction in the City's municipal water supply.
- Provide a temporary cartridge filtration plant to treat the municipal potable water supply.
- Construct a new industrial infiltration gallery in place of the current industrial surface water diversion to provide water for the City's industrial customers.
- Construct a temporary industrial pretreatment facility to be a primary sedimentation basin to remove particulates from the water supplied to industrial customers.
- Temporarily relocate the chinook salmon production from the WDFW fish rearing channel during dam removal activities.

- Construct dikes to flood proof the area containing the current Ranney collector, the proposed package in-line filtration plant, and the industrial pretreatment facility.
- Upgrade the existing Tribal hatchery infiltration gallery, restore existing wells, construct new infiltration gallery, drill two new wells, and add aeration facilities.

The Bureau of Reclamation (BOR) prepared a report entitled *Water Quality Analysis and Mitigation Measures* (BOR, March 1997). This report examined the impact to water quality in the Elwha River from the preferred alternative for dam removal presented in the 1996 EIS. The *Water Quality Analysis and Mitigation Measures Report* (BOR, March 1997) modeled sediment transport and predicted both short-term and long-term changes in water quality within the Elwha River as a result of dam removal. The report also examined alternative mitigation measures and developed a conceptual design and cost estimate for the water quality mitigation measures initially presented in the EIS.

Since the release of the *Water Quality Analysis and Mitigation Measures Report* in 1997, additional new information has become available that requires a re-evaluation of the proposed mitigation measures. Additional new information relevant to the project includes:

- The cartridge filter manufacturer proposed no longer makes the proposed equipment for drinking water treatment, and cartridge filtration is not approved by the Environmental Protection Agency (EPA) for the removal of cryptosporidium.
- One of the industrial water users, the Rayonier Pulp Mill (Rayonier), no longer exists.
- Additional potential sources of a temporary water supply to utilize during periods of extremely poor water quality have been identified and need to be evaluated.
- Additional potential sites for a treatment facility have been identified.
- The water from the City of Port Angeles' current Ranney collector has been classified as groundwater under the influence of surface water (GWI) and must now meet the treatment requirements of the Enhanced Surface Water Treatment Rule (SWTR) and Disinfection/Disinfectant By-Product Rule (D/DBP).
- The proposed improvements to the Tribe's infiltration galley will not protect the hatchery's water supply from potential river mitigation and corresponding reduction in yield.
- The National Marine Fisheries Service (NMFS) has listed the chinook salmon currently raised in the WDFW fish rearing facility as a threatened species and will not allow the rearing channel to be shut down as planned during the period of dam removal.
- The U.S. Fish and Wildlife Service has listed bull trout in the Elwha River as a threatened species.

Based on this new project information, a revised set of mitigation alternatives have been developed and evaluated as part of this Project Planning Report.

### 1.3 REPORT ORGANIZATION

The contents of the Elwha River Water Quality Mitigation Project Planning Report are divided into an executive summary, nine sections, and appendices. Each section describes components of the study and is briefly summarized in the following.

### **Executive Summary**

The executive summary is a brief description of the study findings and is intended to provide a summary of the development and recommendations of the report.

### **Section 1 – Introduction**

The introduction provides the purpose and scope of this study and gives the description and history of the project.

### **Section 2 – Elwha River**

Information on the Elwha River is given in this section. The water rights associated with the key entities affected by the dam demolition are provided. The present and anticipated river water quality during and after the dam removal based on modeling by the Bureau of Reclamation are presented.

### **Section 3 – Applicable Drinking Water Treatment Regulations**

The required drinking water treatment regulations are presented in this section and in the appendices. The municipal water treatment must be provided to treat water that will satisfy the present and be adaptable to the anticipated future drinking water regulations.

### **Section 4 – Existing Water Intake, Treatment and Distribution Facilities**

The existing water supply and treatment facilities for the City of Port Angeles, industrial supply for Daishowa and the WDFW rearing channel, and Tribe hatchery are presented in this section.

### **Section 5 – Projected Water Quantities**

To enable mitigation plans to be developed, the projected water use quantities are presented for each user including the City's municipal use, WDFW rearing channel, Daishowa Industries, and the Tribal hatchery. Both present and projected water usage is given.

### **Section 6 – Municipal Water System Alternatives**

Water supply and treatment alternatives are developed in this section to provide drinking water to the City of Port Angeles water distribution system. Multiple treatment alternatives are presented with process descriptions, capital and operating costs, and advantages and disadvantages for each alternative. A recommended supply and treatment alternative is made.

### **Section 7 – Industrial and Fisheries Mitigation Measures**

Methods and options for obtaining water and treating water for the industrial and fisheries users are presented in this section. The measures also consider providing an alternate source of water for the City municipal water supply.

### **Section 8 – Proposed Schedule for Implementation**

A schedule for the planning, engineering, and construction of the water mitigation facilities is presented in this section.

### **Section 9 – Value Engineering**

In accordance with Olympic National Park and Bureau of Reclamation guidelines value engineering was completed during the time that the study was being developed. Three meetings

were conducted and proposals for investigation were prepared then further evaluated by the team preparing this report.

### **Appendices**

The appendices are provided to supplement the findings of the sections and present more detailed information.